

January 13, 2011

**VIA ELECTRONIC FILING**

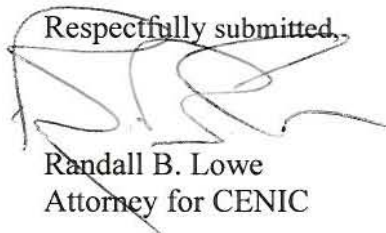
Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW, Portals  
Washington, DC 20554

Re: Ex Parte - In the Matter of Rural Health Care Support Mechanism  
(WC Docket No. 02-60)

Dear Ms. Dortch:

On January 13, 2011, James Dolgonas, President/Chief Executive Officer of The Corporation for Education Network Initiatives in California (CENIC), and the undersigned met with Trent Harkrader, Divya Shenoy, Jamie Susskind, Cindy Spiers, Romanda Williams and Chin Yoo of the Commission. Shortly thereafter, CENIC filed with the Commission notice of the meeting, as well as two of the documents which were the subject of the meeting. The attached document entitled "The Benefits of CENIC's California Research and Education Network," which was also discussed at the meeting, was inadvertently omitted from the notice.

Respectfully submitted,



Randall B. Lowe  
Attorney for CENIC

cc: Trent Harkrader  
Divya Shenoy  
Jamie Susskind  
Cindy Spiers  
Romanda Williams  
Chin Yoo

## The Benefits of CENIC's California Research and Education Network

California's higher education and research communities leverage their networking resources under the umbrella of a nonprofit corporation known as CENIC, the Corporation for Education Network Initiatives in California, in order to obtain cost-effective, high-bandwidth networking to support their missions and answer the needs of their faculty, staff, and students. CENIC designs, implements, and operates CalREN, the California Research and Education Network, a high-bandwidth, high-capacity Internet network specially designed to meet the unique requirements of these communities, and to which the vast majority of the state's K-20 educational institutions are connected. In order to facilitate collaboration in education and research, CENIC also provides connectivity to non-California institutions and industry research organizations with which CENIC's Associate researchers and educators are engaged.

CalREN consists of a CENIC-operated backbone to which schools and other institutions in all 58 of California's counties connect via leased circuits obtained from telecom carriers or fiber-optic cable. In the map to the right, the CalREN backbone fiber network is shown in red, while blue circles indicate network connection points or circuit aggregation facilities.

CENIC is governed by its member institutions. Representatives from these institutions also donate expertise through their participation in various committees designed to ensure that CENIC is managed effectively and efficiently, and to support the continued evolution of the network as technology advances.



## Benefits of Joining the CENIC Community

- Highly reliable, high-speed Internet connectivity among schools and colleges in California.
- No commercial Internet costs when communicating with California's educational institutions connected to CalREN and with hundreds of national educational institutions who belong to Internet2, National LambdaRail, and other organizations with whom CENIC has a network peering relationship.
- A Network Operations Center (NOC) that understands educational institutions and was formed to meet the needs of such organizations — ready to provide advanced network services 24 hours a day, 7 days a week, 365 days a year.
- An estimated savings of 50% or more on commodity/commercial ISP charges, realized as a result of peering arrangements with numerous commercial firms. In addition, traffic from K-20 entities in California can reach K-20 entities in 36 other states at no additional cost.
- A "ring" architecture-designed backbone to allow network traffic to travel on one of two paths to achieve the highest levels of reliability.
- If desired, the ability to provide diverse connections from a campus to an alternate CalREN hub site.
- Participation with other research and educational institutions in networking issues, via various CENIC-sponsored events.
- Many research opportunities, such as those offered by the National Science Foundation (NSF) and the National Institutes of Health (NIH) require access to advanced, high-speed networks like CalREN.
- National and global collaboration with other researchers and educators via highly reliable, uncongested Internet services through an optical backbone infrastructure resulting in the lowest latency network services to other major research and education institutions.

### CENIC & CalREN Charter Associates

**California Community Colleges**  
109 California Community College sites, including the CCC Chancellor's Office, constituent sites, and off-site centers

**California Institute of Technology**  
Jet Propulsion Laboratory

**California K-12 System**  
All 58 counties in California, served by a total of 74 node sites

**California State University System**  
23 CSU campuses, the CSU Chancellor's Offices, various off-site centers

**Stanford University**  
Stanford Linear Accelerator Center  
Stanford Medical Center

**University of California System**  
10 UC campuses plus the UC Office of the President

**University of Southern California**  
Health Sciences Campus  
Information Sciences Institute  
University Park Campus

**CalREN Associates**  
Nevada System of Higher Education  
Arizona State University  
University of Arizona  
Naval Postgraduate School  
NASA Ames Research Center

# Benefits

## CalREN Network Relationships

**Internet2 • UCAID • [www.internet2.edu](http://www.internet2.edu) • [www.ucaid.edu](http://www.ucaid.edu)**

The University Corporation for Advanced Internet Development (UCAID) is a consortium of more than 200 universities and other institutions founded to develop the next-generation Internet, or Internet2. CENIC provides its Associates with 10 Gb/s Ethernet connections to Abilene, the national Internet2 backbone, in southern California and Seattle.

**National LambdaRail • [www.nlr.net](http://www.nlr.net)**

National LambdaRail (NLR) is advancing the research, clinical, and educational goals of members and other institutions by establishing and maintaining a unique nationwide optical network infrastructure that is owned and controlled by the U.S. research community. CENIC provides Layer 1 services to NLR. The NLR Phase II project involves deployment of the next phase of the NLR footprint from Florida to California, and as the Layer 1 NOC for NLR, CENIC will provide operational support during this deployment.

**Cooperación Latino-Americana de Redes Avanzadas • [www.redclara.net](http://www.redclara.net)**

The Cooperación Latino-Americana de Redes Avanzadas (CLARA) is a high-bandwidth network throughout Central and South America that serves to interconnect research and educational institutions there to one another and the world.

**Corporación Universitaria para el Desarrollo de Internet • [www.cudi.edu.mx](http://www.cudi.edu.mx)**

The Corporación Universitaria para el Desarrollo de Internet (CUDI) is a Mexican nonprofit corporation composed of members from the public and private sectors. CUDI funds an advanced, high-speed network in Mexico and has agreements with a number of carriers that provide high-performance applications to higher education and research institutions. A high-speed link between CalREN and CUDI/CLARA was established in 2000, upgraded to a 1 Gb/s link in July of 2005 with funding from the National Science Foundation.

## Professional Associations

**EDUCAUSE • [www.educause.edu](http://www.educause.edu)**

EDUCAUSE is the nation's leading professional organization for information technology in higher education. CENIC is a member of the EDUCAUSE Net@EDU program, which formed the Broadband Pricing Group (BPG) with CENIC as an active participant.

**Association of Pacific Rim Universities • [www.apru.org](http://www.apru.org)**

The Association of Pacific Rim Universities (APRU) was founded with the goal of stimulating cooperation throughout the fields of teaching and research on issues of importance to the Pacific Rim community.

**Internet Educational Equal Access Foundation • [www.ieeaf.org](http://www.ieeaf.org)**

The Internet Educational Equal Access Foundation (IEEAF) is a public-private partnership whose goal is to obtain donations of unused communications and networking assets and international bandwidth to enable global collaboration in research and education. CENIC's participation resulted from a Memorandum of Understanding between CENIC and Geographic Network Affiliates in February of 2000.



## Global Possibilities

*CENIC Enables Worldwide Collaboration*

Pacific Wave ([www.pacificwave.net](http://www.pacificwave.net)) is a state-of-the-art international peering exchange facility designed to serve research and education networks throughout the Pacific Rim and the world. A joint project between CENIC and the Pacific Northwest Gigapop in collaboration with the University of Southern California and the University of Washington, Pacific Wave creates a new peering paradigm by removing the geographical barriers of traditional peering facilities. It enables any US or international network to connect at any of three locations along the US Pacific coast, as well as offers the option to peer with any other Pacific Wave participant, regardless of physical location.



By presenting a seamless, unified, international peering exchange facility at strategic Pacific coast locations, the Pacific Wave peering facility is a magnet for research and education partners throughout Canada, Mexico, South America, and the Pacific Rim.

Participant networks include:

<b>Australia:</b> AARNet	<b>Qatar:</b> Qatar Foundation	CENIC Comcast DREN ESnet Entertainment Technology Center Los Nettos Microsoft Corporation MIMOS Berhad National LambdaRail Pacific Northwest Gigapop
<b>Canada:</b> CA*net4	<b>Taiwan:</b> TANET2 TWAREN	Pointshare TransPAC2 Ultralight
<b>Japan:</b> GEMnet SINET T-LEX	<b>Singapore:</b> NUS-Gigapop SingAREN	
<b>Korea:</b> KREONet2/KOREN	<b>United States:</b> Abilene/Internet2 The Boeing Company	

Via its connection to Abilene, the Internet2 backbone, CENIC also enables collaboration with researchers and educators in Europe and the Western Hemisphere.

CENIC also offers commodity peering with the following corporations and others:

China Telecom Time Warner Telecom Earthlink Japan Telecom Korea Telecom Telecom Malaysia	SingTel Comcast Microsoft Corporation BBC Internet Services Yahoo! Akamai Technologies	Sony Online Entertainment Nokia Google Charter Communications Cox Communications
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## How Do I Connect to CalREN?

To learn how your institution can become a CENIC Associate and benefit from participation in CalREN, please contact CENIC at (714) 220-3400 or write to [info@cenic.org](mailto:info@cenic.org). More detailed information can also be found on our website at [www.cenic.org](http://www.cenic.org).